Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Table J-1. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for Streams within the Seneca Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**	**PIBO Effectiveness Monitoring Data**		**PAC FISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
						Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**Vance Creek Reach 01-02**			-	-	-	-	-
Percent of Stream within Pasture	**85%**			-	-	-	-	-
Pasture Name	Vance Creek			-	-	-	-	-
Survey Date	7/29/1993			-	-	-	-	-
Site ID	-			-	-	-	-	-
Sample Type	-			-	-	-	-	-
6th Field HUC	170702010703			-	-	-	-	-
Ave Wetted Width (feet)	5.12			-	-	-	-	-
Ave Wetted Width to Depth (riffles)	-			-	-	-	-	-
Ave Bankfull Width (feet)	11.14			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Ave BKFL W/D	10.1			<10[6]	<10[6]	<10[7]	10-12[7]	>12[7]
Av Gradient (%)	4			-	-	-	-	-
Residual Pool Depth (feet)	1.1			-	-	-	-	-
Pool Frequency (#/mi)	39.2			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mile 5 feet 184 10 " 96 15 " 70 20 " 56 25 " 47 50 " 26	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards
Pool Quality	0			-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	8.7			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	Gravel, No			-	Embedded <=20%	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (interstitial spaces clear), or embeddedness <20%	Gravel or cobble subdominant, or embeddedness 20-30% if dominant	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel or cobble dominant
Pct Fines <2 mm in Riffles (R) or Pool Tails (P)	-			-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	77%			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)	-			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Percent Undercut Banks	-			>75	50-75% undercut[9]	-	-	-
Large Wood Frequency (#/mi)[14]	80			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20[13] and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment
Percent Shade/Canopy Closure	84%			-	40-55[15] 50-65[16] 60-75[17] 80[18]	-	-	-
Dominant Overstory	Mixed Conifer			-	-	-	-	-
Greenline Wetland Rating	-			-	-	-	-	-
Greenline Woody Cover	-			-	-	-	-	-
Physical Man-made Barriers[19]	0			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows
Off-channel Habitat & Refugia	Side channels on 1.6% of reach			-	-	Low energy backwaters & side channels	Some backwaters & high energy side channels	Few or no backwaters

Notes: **1)** All PIBO data units converted from metric to English except for mm measurements; **2)** Channels of <10 feet in width; **3)** Channels of >10 to 20 feet in width; **4)** Channels of >20 to 25 feet in width; **5)** Channels of >25 to 50 feet in width; **6)** Criteria is for wetted W/D ratio; **7)** Criteria is for bankfull W/D ratio; **8)** Fines defined as <0.85mm in gravel; **9)** In non-forested systems with 2% or less gradient; **10)** In Ponderosa pine ecosystems (at least 12 inches in diameter and 20% > 20 inches in diameter; and at least 35 feet long or 1.5 times bankfull width); **11)** In mixed conifer ecosystems (at least 12 inches in diameter and 20% > 20 inches in diameter; and at least 35 feet long or 1.5 times bankfull width); **12)** In Lodgepole pine ecosystems (at least 6 inches in diameter and 10% > 12 inches in diameter; and at least 18 feet long or 1.5 times bankfull width); **13)** LWD defined as >12 inch diameter and > 35 ft length; **14)** Stream surveys conducted in 1995 and earlier **a)** included not only LW material within the bankfull channel, but also leaning trees that have the potential to fall into the stream, and **b)** included a "Brush" LWD category that is not considered functional LWD as per Amendment 29 DFCs and the MPI unless in Lodgepole Pine ecosystems. Stream surveys conducted in 1996 and later **a)** only included trees actually within the bankfull channel interacting with stream flow during bankfull conditions, and **b)** included a "Small" LWD category that is not considered functional LWD as described above; **15)** In Ponderosa pine ecosystems; **16)** In mixed

conifer ecosystems; **17)** In Lodgepole pine ecosystems; **18)** In hardwood/meadow complexes; **19)** Culvert barrier data from MNF Culvert Assessment GIS layer.

Table J-2. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for Streams within the Handscomb Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**		**PIBO Effectiveness Monitoring Data**		**PAC FISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
							Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**Laycock Creek Reach 01-02**	**Laycock Creek Reach 01-03**			-	-	-	-	-
Percent of Stream within Pasture	100%	100%			-	-	-	-	-
Pasture Name	Laycock	Laycock			-	-	-	-	-
Survey Date	10/19/1995	10/19/1995			-	-	-	-	-
Site ID	-	-			-	-	-	-	-
Sample Type	-	-			-	-	-	-	-
6th Field HUC	170702010901	170702010901			-	-	-	-	-
Ave Wetted Width (feet)	7.36	12.09			-	-	-	-	-
Ave Wetted Width to Depth (riffles)	-	-			-	-	-	-	-
Ave Bankfull Width (feet)	8.42	9.6			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Ave BKFL W/D	12.1	12.1			<10[6]	<10[6]	<10[7]	10-12[7]	>12[7]
Av Gradient (%)	6.5	6.5			-	-	-	-	-
Residual Pool Depth (feet)	1.46	1.59			-	-	-	-	-
Pool Frequency (#/mi)	37	13.59			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mile 5 feet 184 10 " 96 15 " 70 20 " 56 25 " 47 50 " 26	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards
Pool Quality	1.32 (3 pools)	1.94 (2 pools)			-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	16.7	1.2			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	Sand, Yes > 20%	Sand, Yes > 20%			-	Embedded <=20%	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (interstitial spaces clear), or embeddedness <20%	Gravel or cobble subdominant, or embeddedness 20-30% if dominant	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel or cobble dominant
Pct Fines <2 mm in Riffles (R) or Pool Tails (P)	-	-			-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	54%	47%			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)	-	-			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Percent Undercut Banks	-	-			>75	50-75% undercut[9]	-	-	-
Large Wood Frequency (#/mi)[14]	26.3	20.4			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20[13] and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment
Percent Shade/Canopy Closure	26%	21%			-	40-55[15] 50-65[16] 60-75[17] 80[18]	-	-	-
Dominant Overstory	Mixed Conifer	Mixed Conifer	-	-	-	-	-	-	-
Greenline Wetland Rating	-	-			-	-	-	-	-
Greenline Woody Cover	-	-			-	-	-	-	-
Physical Man-made Barriers[19]	0	0			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows
Off-channel Habitat & Refugia	Side channels on 6.6% of reach	Side channels on 4.6% of reach			-	-	Low energy backwaters & side channels	Some backwaters & high energy side channels	Few or no backwaters

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Table J-3. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for Ingle Creek within the Deadhorse Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**	**PIBO Effectiveness Monitoring Data**		**PACFISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
						Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**Ingle 01-02**			-	-	-	-	-
Percent of Stream within Pasture	**100%**			-	-	-	-	-
Pasture Name	North			-	-	-	-	-
Survey Date	10/15/1995			-	-	-	-	-
Site ID				-	-	-	-	-
Sample Type	-			-	-	-	-	-
6th Field HUC	170702011004			-	-	-	-	-
Ave Wetted Width (feet)	7.15			-	-	-	-	-
Ave Wetted Width to Depth (riffles)	-			-	-	-	-	-
Ave Bankfull Width (feet)	7.88			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Ave BKFL W/D	20.7675			<10[6]	<10[6]	<10[7]	10-12[7]	>12[7]
Av Gradient (%)	10			-	-	-	-	-
Residual Pool Depth (feet)	1.064			-	-	-	-	-
Pool Frequency (#/mi)	27.17			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mile 5 feet 184 10 " 96 15 " 70 20 " 56 25 " 47 50 " 26	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards
Pool Quality	0			-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	8.21			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	-			-	Embedded <=20%	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (interstitial	Gravel or cobble subdominant, or embeddedness 20-30% if	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel

						spaces clear), or embeddedness <20%	dominant	or cobble dominant
Pct Fines <2 mm in Riffles (R) or Pool Tails (P)	-			-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	-			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)	**-**			-	-	-	-	-
Percent Undercut Banks	**-**			>75	50-75% undercut[9]	-	-	-
Large Wood Frequency (#/mi)[14]	49.78			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20[13] and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment
Percent Shade/Canopy Closure	-			-	40-55[15] 50-65[16] 60-75[17] 80[18]	-	-	-
Dominant Overstory	Douglas Fir	-	-	-	-	-	-	-
Greenline Wetland Rating	-			-	-	-	-	-
Greenline Woody Cover	-			-	-	-	-	-

Off-channel Habitat & Refugia	3.09			-	-	Low energy backwaters & side channels	Some backwaters & high energy side channels	Few or no backwaters
Physical Man-made Barriers[19]	0			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Table J-4. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for Riley Creek within the Deadhorse Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**		**PIBO Effectiveness Monitoring Data**		**PAC FISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
							Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**Riley 01-02**	**Riley 01-03**			-	-	-	-	-
Percent of Stream within Pasture	**100**	**100**			-	-	-	-	-
Pasture Name	North	North			-	-	-	-	-
Survey Date	9/12/2005	9/12/2005			-	-	-	-	-
Site ID	-	-			-	-	-	-	-
Sample Type	-	-			-	-	-	-	-
6th Field HUC	170702011003	170702011003			-	-	-	-	-
Ave Wetted Width (feet)	9.23	9.58			-	-	-	-	-
Ave Wetted Width to Depth (riffles)	-	-			-	-	-	-	-
Ave Bankfull Width (feet)	12.32	10.92			-	-	-	-	-
Ave BKFL W/D	26.494	27.7742			$<10^6$	$<10^6$	$<10^7$	$10\text{-}12^7$	$>12^7$
Av Gradient (%)	7	11			-	-	-	-	-
Residual Pool	1.233	1.682			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Depth (feet)									
Pool Frequency (#/mi)	31.34	45.95			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mile 5 feet 184 10 " 96 15 " 70 20 " 56 25 " 47 50 " 26	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards
Pool Quality	-	5.41			-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	15.14	24.21			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	Cobble < 20%	Bedrock < 20%			-	Embedded <=20%	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (interstitial spaces clear), or embeddedness <20%	Gravel or cobble subdominant, or embeddedness 20-30% if dominant	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel or cobble dominant
Pct Fines <2 mm in Riffles (R) or Pool Tails (P)	-	-			-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	80-90%	91-100%			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)	-	-			-	-	-	-	-
Percent Undercut Banks	-	-			>75	50-75% undercut[9]	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Large Wood Frequency (#/mi)[14]	29.85	16.22			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20[13] and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment
Percent Shade/Canopy Closure	62%	69%			-	40-55[15] 50-65[16] 60-75[17] 80[18]	-	-	-
Dominant Overstory	Ponderosa Pine	Ponderosa Pine	-	-	-	-	-	-	-
Greenline Wetland Rating	-	-			-	-	-	-	-
Greenline Woody Cover	-	-			-	-	-	-	-
Off-channel Habitat & Refugia	Side channels on 1.9% of reach	Side channels on 2.3 % of reach			-	-	Low energy backwaters & side channels	Some backwaters & high energy side channels	Few or no backwaters
Physical Man-made Barriers[19]	0	0			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Table J-5. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for Basin Creek within the Fields Peak Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**	**PIBO Effectiveness Monitoring Data**		**PACFISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
						Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**Basin 01-01**			-	-	-	-	-
Percent of Stream within Pasture	**100%**			-	-	-	-	-
Pasture Name	Murderers Creek			-	-	-	-	-
Survey Date	7/8/1992			-	-	-	-	-
Site ID	-			-	-	-	-	-
Sample Type	-			-	-	-	-	-
6th Field HUC	170702010401			-	-	-	-	-
Ave Wetted Width (feet)	2.43			-	-	-	-	-
Ave Wetted Width to Depth (riffles)	-			-	-	-	-	-
Ave Bankfull Width (feet)	4.97			-	-	-	-	-

Ave BKFL W/D	7.7678			<10[6]	<10[6]	<10[7]	10-12[7]	>12[7]
Av Gradient (%)	3			-	-	-	-	-
Residual Pool Depth (feet)	0.367			-	-	-	-	-
Pool Frequency (#/mi)	42.86			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mile 5 feet 184 10 " 96 15 " 70 20 " 56 25 " 47 50 " 26	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards
Pool Quality	0			-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	30.03			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	SA >35%			-	Embedded <=20%	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (interstitial	Gravel or cobble subdominant, or embeddedness 20-30% if	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

						spaces clear), or embeddedness <20%	dominant	or cobble dominant
Pct Fines <2 mm in Riffles (R) or Pool Tails (P)	-			-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	98%			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)	**-**			-	-	-	-	-
Percent Undercut Banks	**-**			>75	50-75% undercut[9]	-	-	-
Large Wood Frequency (#/mi)[14]	607.74			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20[13] and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment
Percent Shade/Canopy Closure	73.40%			-	40-55[15] 50-65[16] 60-75[17] 80[18]	-	-	-
Dominant Overstory	lodgepole/douglas fir	-	-	-	-	-	-	-
Greenline Wetland Rating	-			-	-	-	-	-
Greenline Woody Cover	-			-	-	-	-	-

Off-channel Habitat & Refugia	1.33			-	-	Low energy backwaters & side channels	Some backwaters & high energy side channels	Few or no backwaters
Physical Man-made Barriers[19]	2			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Table J-6. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for Lemon Creek within the Fields Peak Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**	**PIBO Effectiveness Monitoring Data**		**PACFISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
						Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**Lemon 01-01**			-	-	-	-	-
Percent of Stream within Pasture	**100%**			-	-	-	-	-
Pasture Name	Murderers Creek			-	-	-	-	-
Survey Date	7/3/1992			-	-	-	-	-
Site ID	-			-	-	-	-	-
Sample Type	-			-	-	-	-	-
6th Field HUC	170702010401			-	-	-	-	-
Ave Wetted Width (feet)	3.17			-	-	-	-	-
Ave Wetted Width to Depth (riffles)	-			-	-	-	-	-
Ave Bankfull Width (feet)	9.07			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Ave BKFL W/D	8.0963			<10[6]	<10[6]	<10[7]	10-12[7]	>12[7]
Av Gradient (%)	10			-	-	-	-	-
Residual Pool Depth (feet)	0.722			-	-	-	-	-
Pool Frequency (#/mi)	60.54			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mile 5 feet 184 10 " 96 15 " 70 20 " 56 25 " 47 50 " 26	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards
Pool Quality	0			-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	78.57			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	SA>35%			-	Embedded <=20%	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (interstitial	Gravel or cobble subdominant, or embeddedness 20-30% if	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

						spaces clear), or embeddedness <20%	dominant	or cobble dominant
Pct Fines <2 mm in Riffles (R) or Pool Tails (P)	-			-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	94%			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)	**-**			-	-	-	-	-
Percent Undercut Banks	**-**			>75	50-75% undercut[9]	-	-	-
Large Wood Frequency (#/mi)[14]	104.08			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20[13] and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment
Percent Shade/Canopy Closure	64%			-	40-55[15] 50-65[16] 60-75[17] 80[18]	-	-	-
Dominant Overstory	juniper/lodgepole	-	-	-	-	-	-	-
Greenline Wetland Rating	-			-	-	-	-	-
Greenline Woody Cover	-			-	-	-	-	-

Off-channel Habitat & Refugia	0.81			-	-	Low energy backwaters & side channels	Some backwaters & high energy side channels	Few or no backwaters
Physical Man-made Barriers[19]	2			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Table J-7. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for Murderers Creek within the Fields Peak Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**						**PIBO Effectiveness Monitoring Data**		**PACFISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
											Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**Murderers Creek 03-10**	**Murderers Creek 03-11**	**Murderers Creek 03-12**	**Murderers Creek 03-13**	**Murderers Creek 03-14**	**Murderers Creek 03-15**			-	-	-	-	-
Percent of Stream within Pasture	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**			-	-	-	-	-
Pasture Name	Murderers Creek	Murderers Creek	Murderers Creek	Murderers Creek	Murderers Creek	Murderers Creek			-	-	-	-	-
Survey Date	7/4/1992	7/4/1992	7/4/1992	7/4/1992	7/4/1992	7/4/1992			-	-	-	-	-
Site ID	-	-	-	-	-	-			-	-	-	-	-
Sample Type	-	-	-	-	-	-			-	-	-	-	-
6th Field HUC	170702010401	170702010401	170702010401	170702010401	170702010401	170702010401			-	-	-	-	-
Ave	8.8	8.64	7.17	6.69	6.76	4.67			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Wetted Width (feet)													
Ave Wetted Width to Depth (riffles)	-	-	-	-	-	-			-	-	-	-	-
Ave Bankfull Width (feet)	13.9	11	9.7	12.8	11	6.5			-	-	-	-	-
Ave BKFL W/D	9.3	5.6	6.1	10.2	10.5	7.8			<10[6]	<10[6]	<10[7]	10-12[7]	>12[7]
Av Gradient (%)	1	1	2	1	2	1			-	-	-	-	-
Residual Pool Depth (feet)	1.3	1.5	1.2	1.1	1	0.7			-	-	-	-	-
Pool Frequency (#/mi)	74.36	49.07	70	84.17	87.97	58.3			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mile 5 feet 184	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

											10 " 96 15 " 70 20 " 56 25 " 47 50 " 26		
Pool Quality	1.54	-	-	1.67	-	-			-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	61	75	79	81	49	33			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	GR>35%	SA>35%	GR>35%	GR>35%	GR>35%	SA>35%			-	Embedded <=20%	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (interstitial spaces clear), or	Gravel or cobble subdominant, or embeddedness 20-30% if dominant	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel or cobble dominan

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

											embeddedness <20%		t
Pct Fines <2 mm in Riffles (R) or Pool Tails (P)	-	-	-	-	-	-			-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	96%	90%	93%	94%	96.10%	100%			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)	-	-	-	-	-	-			-	-	-	-	-
Percent Undercut Banks	-	-	-	-	-	-			>75	50-75% undercut[9]	-	-	-
Large Wood Frequency (#/mi)[14]	97.9	133.3	106	130.8	6	21.1			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20[13] and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Percent Shade/Canopy Closure	43.50%	44%	51%	36%	24.40%	58%			-	40-55[15] 50-65[16] 60-75[17] 80[18]	-	-	-
Dominant Overstory	lodgepole/ponderosa	lodgepole/larch/ponderosa	lodgepole/ponderosa	lodgepole	lodgepole	lodgepole/ponderosa	-	-	-	-	-	-	-
Greenline Wetland Rating	-	-	-	-	-	-			-	-	-	-	-
Greenline Woody Cover	-	-	-	-	-	-			-	-	-	-	-
Off-channel Habitat & Refugia	0.5	0.4	1	0.4	1	0.3			-	-	Low energy backwaters & side channels	Some backwaters & high energy side channels	Few or no backwaters
Physical Man-made Barriers[19]	2	1	1	1	3	0			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Table J-8. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for Tex Creek within the Fields Peak Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**									**PIBO Effectiveness Monitoring Data**		**PACFISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
														Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**Tex Creek 01-01**	**Tex Creek 01-02**	**Tex Creek 01-03**	**Tex Creek 01-04**	**Tex Creek 01-05**	**Tex Creek 01-06**	**Tex Creek 01-06**	**Tex Creek 01-07**	**Tex Creek 01-08**			-	-	-	-	-
Percent of Stream within Pasture	**100%**	**100%**	**100%**	**100%**	**100%**	**79%**	**21%**	**100%**	**100%**			-	-	-	-	-
Pasture Name	Tex Creek	Tex Creek	Tex Creek	Tex Creek	Tex Creek	Tex Creek	Miners	Miners	Miners			-	-	-	-	-
Survey Date	9/26/1995	9/26/1995	9/26/1995	9/26/1995	9/26/1995	9/26/1995	9/26/1995	9/26/1995	9/26/1995			-	-	-	-	-
Site ID	-	-	-	-	-	-	-	-	-			-	-	-	-	-
Sample Type	-	-	-	-	-	-	-	-	-			-	-	-	-	-
6th Field HUC	170702010401	170702010401	170702010401	170702010401	170702010401	170702010401	170702010401	170702010401	170702010401			-	-	-	-	-
Ave Wetted	7.41	7.6	6.22	7.86	8.35	8.89	8.89	6.79	5.74			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Width (feet)																
Ave Wetted Width to Depth (riffles)												-	-	-	-	-
Ave Bankfull Width (feet)	15.4	16.3	12.9	16.7	13.04	11.85	11.85	11.66	10.68			-	-	-	-	-
Ave BKFL W/D	26.4711	18.1124	11.7266	33.4	20.5133	14.8427	14.8427	12.6139	11.7523			<10[6]	<10[6]	<10[7]	10-12[7]	>12[7]
Av Gradient (%)	2	2	2	2	2	5	5	6	4			-	-	-	-	-
Residual Pool Depth (feet)	1.083	1.025	1.14	0.864	0.947	1.044	1.044	0.952	0.738			-	-	-	-	-
Pool Frequency (#/mi)	37.04	35.29	20.83	43.75	36.19	59.26	59.26	30.67	42.73			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mil	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

														e 5 feet 184 10 " 96 15 " 70 20 " 56 25 " 47 50 " 26		
Pool Quality	-	-	-	-	0.95	-	-	0.67	-			-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	42.19	41.01	45.7	46.3	31.49	33.48	33.48	17.71	23.57			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	GR >20%	GR>20 %	SA>20 %	GR<20 %	GR<20 %	CO<20 %	CO<20 %	GR<20 %	GR<20 %			-	Embedded <=20 %	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (intersti	Gravel or cobble subdominant, or embeddedness 20-30% if domina	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

														tial spaces clear), or embeddedness <20%	nt	or cobble dominant
Pct Fines <2 mm in Riffles (R) or Pool Tails (P)	-	-	-	-	-	-	-	-	-			-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	90%	90%	90%	90%	80-90%	90%	90%	80-90%	90%			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)	-	-	-	-	-	-	-	-	-			-	-	-	-	-
Percent Undercut Banks	-	-	-	-	-	-	-	-	-			>75	50-75% undercut[9]	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Large Wood Frequency (#/mi)[14]	4.24	0	0	0	4.16	44.45	44.45	28	37.28			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20 and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment
Percent Shade/ Canopy Closure	23%	0%	42%	37%	48%	54%	54%	65%	69%			-	40-55[15] 50-65[16] 60-75[17] 80[18]	-	-	-
Dominant Overstory	Ponderosa	Ponderosa	Ponderosa	Ponderosa	Ponderosa	Ponderosa	Ponderosa	Douglas Fir	Grand Fir	-	-	-	-	-	-	-
Greenline Wetland Rating	-	-	-	-	-	-	-	-	-			-	-	-	-	-
Greenline Woody Cover	-	-	-	-	-	-	-	-	-			-	-	-	-	-
Off-channel Habitat & Refugia	1.77	-	-	-	1.11	-	-	4.1	1.21			-	-	Low energy backwaters & side channel	Some backwaters & high energy side	Few or no backwaters

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

														s	channels	
Physical Man-made Barriers [19]	0	0	0	1	0	0	0	0	0			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Table J-9. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for Wickiup Creek within the Fields Peak Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**	**PIBO Effectiveness Monitoring Data**		**PACFISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
						Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**Wickiup Creek 01-01**			-	-	-	-	-
Percent of Stream within Pasture	**100%**			-	-	-	-	-
Pasture Name	Fields Peak			-	-	-	-	-
Survey Date	8/8/1992			-	-	-	-	-
Site ID	-			-	-	-	-	-
Sample Type	-			-	-	-	-	-
6th Field HUC	17070211103			-	-	-	-	-
Ave Wetted Width (feet)	4.46			-	-	-	-	-
Ave Wetted Width to Depth (riffles)	-			-	-	-	-	-
Ave Bankfull Width (feet)	8.11			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Ave BKFL W/D	8.0513			<10[6]	<10[6]	<10[7]	10-12[7]	>12[7]
Av Gradient (%)	6			-	-	-	-	-
Residual Pool Depth (feet)	0.614			-	-	-	-	-
Pool Frequency (#/mi)	144.35			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mile 5 feet 184 10 " 96 15 " 70 20 " 56 25 " 47 50 " 26	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards
Pool Quality	-			-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	69.05			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	CO			-	Embedded <=20%	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (interstitial	Gravel or cobble subdominant, or embeddedness 20-30% if	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

						spaces clear), or embeddedness <20%	dominant	or cobble dominant
Pct Fines <2 mm in Riffles (R) or Pool Tails (P)	SA 71%			-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	**94%**			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)	-			-	-	-	-	-
Percent Undercut Banks	**-**			>75	50-75% undercut[9]	-	-	-
Large Wood Frequency (#/mi)[14]	300.44			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20[13] and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment
Percent Shade/Canopy Closure	62%			-	40-55[15] 50-65[16] 60-75[17] 80[18]	-	-	-
Dominant Overstory	Ponderosa/white fir	-	-	-	-	-	-	-
Greenline Wetland Rating	-			-	-	-	-	-
Greenline Woody Cover	-			-	-	-	-	-

Off-channel Habitat & Refugia	3.35			-	-	Low energy backwaters & side channels	Some backwaters & high energy side channels	Few or no backwaters
Physical Man-made Barriers[19]	0			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Table J-10. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for Fields Creek within the Fields Peak Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**							**PIBO Effectiveness Monitoring Data**		**PACFISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
												Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**Fields Creek 01-01**	**Fields Creek 01-02**	**Fields Creek 01-03**	**Fields Creek 01-04**	**Fields Creek 01-05**	**Fields Creek 01-06**	**Fields Creek 01-07**			-	-	-	-	-
Percent of Stream within Pasture	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**			-	-	-	-	-
Pasture Name	Fields Peak	Fields Peak	Fields Peak	Fields Peak	Fields Peak	Fields Peak	Fields Peak			-	-	-	-	-
Survey Date	7/7/1992	7/7/1992	7/7/1992	7/7/1992	7/7/1992	7/7/1992	7/7/1992			-	-	-	-	-
Site ID	-	-	-	-	-	-	-			-	-	-	-	-
Sample Type	-	-	-	-	-	-	-			-	-	-	-	-
6th Field HUC	1707020 11103	1707020 11103	1707020 11103	1707020 11103	1707020 11103	1707020 11103	1707020 11103			-	-	-	-	-
Ave Wetted Width	8.79	8.23	6.71	5.83	4.91	5.04	3.44			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

(feet)														
Ave Wetted Width to Depth (riffles)										-	-	-	-	-
Ave Bankfull Width (feet)	19	17.2	14.58	11	10.75	8.08	12			-	-	-	-	-
Ave BKFL W/D	14.6424	13.759	10.4805	11.2978	8.1424	7.4321	6.316			<10[6]	<10[6]	<10[7]	10-12[7]	>12[7]
Av Gradient (%)	2	5	3	5	9	8	8			-	-	-	-	-
Residual Pool Depth (feet)	0.877	0.763	0.627	0.608	0.667	0.498	0.545			-	-	-	-	-
Pool Frequency (#/mi)	85.42	78.82	94.96	89.66	165.31	110.19	100			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mile 5 feet 184 10 " 96	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

												15 " 70 20 " 56 25 " 47 50 " 26		
Pool Quality										-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	26.77	28.16	30.46	30.44	35.87	35.15	36.35			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	CO>35 %	CO>35 %	GR>35 %	GR>35 %	GR<35 %	GR>35 %	SA>35%			-	Embedded <=20 %	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (interstitial spaces clear), or embeddedness <20%	Gravel or cobble subdominant, or embeddedness 20-30% if dominant	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel or cobble dominant

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Pct Fines <2 mm in Riffles (R) or Pool Tails (P)										-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	95%	84%	71%	52%	48%	26%	35%			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)										-	-	-	-	-
Percent Undercut Banks										>75	50-75% undercut[9]	-	-	-
Large Wood Frequency (#/mi)[14]	75	83.53	76.47	94.83	142.86	156.48	96.23			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20[13] and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment
Percent Shade/Canopy Closure	82%	66%	74%	85%	99%	91%	88%			-	40-55[15] 50-65[16] 60-75[17]	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

											80[18]			
Dominant Overstory	Mixed conifer	Mixed conifer	Mixed conifer	Mixed conifer	Mixed conifer	Mixed conifer	Mixed conifer	-	-	-	-	-	-	-
Greenline Wetland Rating										-	-	-	-	-
Greenline Woody Cover										-	-	-	-	-
Off-channel Habitat & Refugia	3.91	10.88	8.08	4.55	8.33	2.46	3.73			-	-	Low energy backwaters & side channels	Some backwaters & high energy side channels	Few or no backwaters
Physical Man-made Barriers[19]	1	0	2	0	0	2	0			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Table J-11. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for Miners Creek within the Fields Peak Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**	**PIBO Effectiveness Monitoring Data**		**PACFISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
						Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**Miners 01-01**			-	-	-	-	-
Percent of Stream within Pasture	**100%**			-	-	-	-	-
Pasture Name	Miners Creek			-	-	-	-	-
Survey Date	8/14/1995			-	-	-	-	-
Site ID	-			-	-	-	-	-
Sample Type	-			-	-	-	-	-
6th Field HUC	170702010401			-	-	-	-	-
Ave Wetted Width (feet)	4.03			-	-	-	-	-
Ave Wetted Width to Depth (riffles)	-			-	-	-	-	-
Ave Bankfull Width (feet)	6.74			-	-	-	-	-
Ave BKFL W/D	10.6365			<10[6]	<10[6]	<10[7]	10-12[7]	>12[7]
Av Gradient (%)	13			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Residual Pool Depth (feet)	0.739			-	-	-	-	-
Pool Frequency (#/mi)	17.37			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mile 5 feet 184 10 " 96 15 " 70 20 " 56 25 " 47 50 " 26	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards
Pool Quality	-			-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	3.89			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	GR>20%			-	Embedded <=20%	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (interstitial spaces clear), or embeddedness <20%	Gravel or cobble subdominant, or embeddedness 20-30% if dominant	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel or cobble dominant
Pct Fines <2 mm in Riffles (R) or Pool Tails (P)	-			-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	68.00%			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)	**-**			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Percent Undercut Banks	-			>75	50-75% undercut[9]	-	-	-
Large Wood Frequency (#/mi)[14]	57.89			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20[13] and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment
Percent Shade/Canopy Closure	71.00%			-	40-55[15] 50-65[16] 60-75[17] 80[18]	-	-	-
Dominant Overstory	Grand Fir	-	-	-	-	-	-	-
Greenline Wetland Rating	-			-	-	-	-	-
Greenline Woody Cover	-			-	-	-	-	-
Off-channel Habitat & Refugia	0.72			-	-	Low energy backwaters & side channels	Some backwaters & high energy side channels	Few or no backwaters
Physical Man-made Barriers[19]	0			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Table J-12. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for Sugar Creek within the Fields Peak Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**	**PIBO Effectiveness Monitoring Data**		**PACFISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
						Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**Sugar 01-01**			-	-	-	-	-
Percent of Stream within Pasture	**100%**			-	-	-	-	-
Pasture Name	Miners			-	-	-	-	-
Survey Date	9/20/1995			-	-	-	-	-
Site ID	-			-	-	-	-	-
Sample Type	-			-	-	-	-	-
6th Field HUC	170702010401			-	-	-	-	-
Ave Wetted Width (feet)	4.69			-	-	-	-	-
Ave Wetted Width to Depth (riffles)	-			-	-	-	-	-
Ave Bankfull Width (feet)	7.73			-	-	-	-	-
Ave BKFL W/D	8.969			<10[6]	<10[6]	<10[7]	10-12[7]	>12[7]
Av Gradient (%)	5			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Residual Pool Depth (feet)	0.711			-	-	-	-	-
Pool Frequency (#/mi)	60.27			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mile 5 feet 184 10 " 96 15 " 70 20 " 56 25 " 47 50 " 26	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards
Pool Quality	0			-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	39.02			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	SA>20%			-	Embedded <=20%	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (interstitial spaces clear), or embeddedness <20%	Gravel or cobble subdominant, or embeddedness 20-30% if dominant	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel or cobble dominant
Pct Fines <2 mm in Riffles (R) or Pool Tails (P)	-			-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	10%			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)	**-**			-	-	-	-	-

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Percent Undercut Banks				>75	50-75% undercut[9]	-	-	-
Large Wood Frequency (#/mi)[14]	73.97			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20[13] and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment
Percent Shade/Canopy Closure	62%			-	40-55[15] 50-65[16] 60-75[17] 80[18]	-	-	-
Dominant Overstory	Grand fir	-	-	-	-	-	-	-
Greenline Wetland Rating	-			-	-	-	-	-
Greenline Woody Cover	-			-	-	-	-	-
Off-channel Habitat & Refugia	-			-	-	Low energy backwaters & side channels	Some backwaters & high energy side channels	Few or no backwaters
Physical Man-made Barriers[19]	1			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

Table J-13. Summary of Available R6 Stream Survey and PIBO Data vs. Fish Habitat Standards for White Creek within the Fields Peak Allotment.

PIBO Data[1] (Bold) *R6 Survey Protocol (Italics)* ***Both (Bold & Italics)***	**R6 Level II Stream Survey Data**	**PIBO Effectiveness Monitoring Data**		**PACFISH RMO**	**Amend 29 DFC**	**NMFS Matrix of Pathways and Indicators Ranges of Criteria**		
						Properly Functioning	**At Risk**	**Not Properly Functioning**
Stream Name	**White 01-01**			-	-	-	-	-
Percent of Stream within Pasture	**100%**			-	-	-	-	-
Pasture Name	Murderers Creek			-	-	-	-	-
Survey Date	7/8/1992			-	-	-	-	-
Site ID	-			-	-	-	-	-
Sample Type	-			-	-	-	-	-
6th Field HUC	170702010401			-	-	-	-	-
Ave Wetted Width (feet)	2.43			-	-	-	-	-
Ave Wetted Width to Depth (riffles)	-			-	-	-	-	-
Ave Bankfull Width (feet)	4.97			-	-	-	-	-

Ave BKFL W/D	7.7678			<10[6]	<10[6]	<10[7]	10-12[7]	>12[7]
Av Gradient (%)	3			-	-	-	-	-
Residual Pool Depth (feet)	0.367			-	-	-	-	-
Pool Frequency (#/mi)	42.86			96[2] 56[3] 47[4] 26[5]	75-132[2] 38-66[3] 30-53[4] 15-26[5]	Meets pool freq & LWD recruitment standards channel width # pools/mile 5 feet 184 10 " 96 15 " 70 20 " 56 25 " 47 50 " 26	Meets pool freq standards but not LWD recruitment	Does not meet pool freq standards
Pool Quality	0			-	-	Pools >1m (3.28ft) deep, good cover, cool water, minimal filling	Few >1m pools or inadequate cover/temp, moderate filling	No >1m pools & inadequate cover/temp, major filling with sediment
Percent Pools	30.03			-	-	-	-	-
D50 (mm), or Dominant Substrate & Embeddedness	SA>35%			-	Embedded <=20%	Dominant substrate gravel (2-64 mm) or cobble (64-256 mm) (interstitial	Gravel or cobble subdominant, or embeddedness 20-30% if	Bedrock, sand, silt, or small gravel dominant, or embeddedness >30% if gravel

Appendix J. R6 Stream Survey and PIBO Effectiveness Monitoring Data for the Seneca, Deadhorse, Hanscomb, and Fields Peak Allotments

						spaces clear), or embeddedness <20%	dominant	or cobble dominant
Pct Fines <2 mm in Riffles (R) or Pool Tails (P)	-			-	-	<12% fines[8] in gravel	12-20% fines[8] in gravel	>20% fines[8] in gravel
Percent Stable Banks (CS & FB)	100%			>80	>90	>90% stable	80-90% stable	< 80% stable
Percent Stable Banks (CS, FB, US)	**-**			-	-	-	-	-
Percent Undercut Banks	**-**			>75	50-75% undercut[9]	-	-	-
Large Wood Frequency (#/mi)[14]	607.74			>20[13]	20-70[10] 80-120[11] 100-350[12]	>20[13] and adequate sources for recruitment	>20 but lacks recruitment to maintain	<20 and lacks recruitment
Percent Shade/Canopy Closure	43%			-	40-55[15] 50-65[16] 60-75[17] 80[18]	-	-	-
Dominant Overstory	ponderosa/lodgepole	-	-	-	-	-	-	-
Greenline Wetland Rating	-			-	-	-	-	-
Greenline Woody Cover	-			-	-	-	-	-

Off-channel Habitat & Refugia	1.33			-	-	Low energy backwaters & side channels	Some backwaters & high energy side channels	Few or no backwaters
Physical Man-made Barriers[19]	1			-	-	Any in watershed allow passage @ all flows	Any don't allow passage @ base flows	Any don't allow passage @ range of flows

Notes: **1)** All PIBO data units converted from metric to English except for mm measurements; **2)** Channels of <10 feet in width; **3)** Channels of >10 to 20 feet in width; **4)** Channels of >20 to 25 feet in width; **5)** Channels of >25 to 50 feet in width; **6)** Criteria is for wetted W/D ratio; **7)** Criteria is for bankfull W/D ratio; **8)** Fines defined as <0.85mm in gravel; **9)** In non-forested systems with 2% or less gradient; **10)** In Ponderosa pine ecosystems (at least 12 inches in diameter and 20% > 20 inches in diameter; and at least 35 feet long or 1.5 times bankfull width); **11)** In mixed conifer ecosystems (at least 12 inches in diameter and 20% > 20 inches in diameter; and at least 35 feet long or 1.5 times bankfull width); **12)** In Lodgepole pine ecosystems (at least 6 inches in diameter and 10% > 12 inches in diameter; and at least 18 feet long or 1.5 times bankfull width); **13)** LWD defined as >12 inch diameter and > 35 ft length; **14)** Stream surveys conducted in 1995 and earlier **a)** included not only LW material within the bankfull channel, but also leaning trees that have the potential to fall into the stream, and **b)** included a "Brush" LWD category that is not considered functional LWD as per Amendment 29 DFCs and the MPI unless in Lodgepole Pine ecosystems. Stream surveys conducted in 1996 and later **a)** only included trees actually within the bankfull channel interacting with stream flow during bankfull conditions, and **b)** included a "Small" LWD category that is not considered functional LWD as described above; **15)** In Ponderosa pine ecosystems; **16)** In mixed conifer ecosystems; **17)** In Lodgepole pine ecosystems; **18)** In hardwood/meadow complexes; **19)** Culvert barrier data from MNF Culvert Assessment GIS layer.